Material Safety Data Sheet

Hydrogen Peroxide 70% Technical Grade

MSDS #: 7722-84-1-70-20
Revision Date: 2013-03-19
Version 1

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name **Hydrogen Peroxide 70% Technical Grade**
Formula HO - OH

Recommended use Chemical synthesis where low residue or precipitates are required

Manufacturer

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
Phone: +1 215/ 299-6000 (General Information)
E-Mail: msdsinfo@fmc.com

FMC of Canada Ltd.
FMC Peroxygens
PG Pulp Mill Road
Prince George, BC V2N2S6
1+ 250/ 561-4200 (General Information)

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
+1 800 / 424 9300 (CHEMTREC - U.S.A.)
+1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
1 613/ 996-6666 (CANUTEC - Canada)
1 303 / 595 9048 (Medical - U.S. - Call Collect)

1 281 / 474-8750 (Bayport, Texas Plant)
1 250 / 561-4221 (Prince George, BC, Canada Plant)

2. Hazards identification

Emergency Overview

Clear, colorless liquid
Oxidizer; Contact with combustible material may cause fire
Decomposes under fire conditions to release oxygen that intensifies the fire
Decomposes yielding oxygen that can cause overpressure if confined

Potential health effects

Principle Routes of Exposure: Eye contact; Skin contact

Eyes Corrosive, Causes serious eye damage.
Skin Corrosive; Causes skin burns.
Inhalation Irritating to respiratory system.
Ingestion Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

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3. Composition/information on ingredients

Ingredients

Chemical Name	CAS-No	Weight %
Water	7732-18-5	30
Hydrogen peroxide	7722-84-1	70

4. First aid measures

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Seek immediate medical attention/advice.

Skin contact
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation
Move to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Ingestion
Rinse mouth. Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention. Never give anything by mouth to an unconscious person.

Notes to physician
Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful opthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attemps at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

5. Fire-fighting measures

Flammable properties
Contact with combustible material may cause fire.

Flash Point
Not combustible

Suitable extinguishing media
Water. Do not use any other substance.

Uniform Fire Code
Oxidizer: Class 3--Liquid

Hazardous combustion products
On decomposition product releases oxygen which may intensify fire.

Explosion Data

Sensitivity to Mechanical Impact
Not sensitive.

Sensitivity to Static Discharge
Not sensitive.

Specific hazards arising from the chemical
In closed unventilated containers, risk of rupture due to the increased pressure from decomposition.

Protective equipment and precautions for firefighters
Use water spray to cool fire exposed surfaces and protect personnel. Move containers from fire area if you can do it without risk. As in any fire, wear self-contained breathing apparatus and full protective gear.

NFPA	Health Hazard 3	Flammability 0	Stability 3	Special Hazards OX

6. Accidental release measures

Personal precautions

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Isolate and post spill area. Keep people away from and upwind of spill/leak. Eliminate all sources of ignition and remove combustible materials.

Methods for containment

Dike to collect large liquid spills. Stop leak and contain spill if this can be done safely. Small spillage: Dilute with large quantities of water.

Methods for cleaning up

Flush area with flooding quantities of water. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%.

Other

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in fire.

7. Handling and storage

Handling

Use only in well-ventilated areas. Keep/Store away from clothing/ combustible materials. Wear personal protective equipment. Never return unused hydrogen peroxide to original container. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic. Pipes and equipment should be passivated before first use.

Storage

Keep containers in cool areas out of direct sunlight and away from combustibles. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment. Containers must be vented. Store in original container only. Store rooms or warehouses should be made of non-combustible materials with impermeable floors. In case of release, spillage should flow to safe area. Containers should be visually inspected on a regular basis to detect any abnormalities (swollen drums, increases in temperature, etc.).

8. Exposure controls/personal protection

Exposure guidelines

Ingredients with workplace control parameters.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³	IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m³	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m³ Mexico: STEL 2 ppm Mexico: STEL 3 mg/m³
Chemical Name	**British Columbia**	**Quebec**	**Ontario TWAEV**	**Alberta**
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³

Occupational exposure controls

Engineering measures

Showers. Eyewash stations. Ventilation systems.

General Information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

Respiratory protection	If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA) or other approved air-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (dust mask), especially those containing oxidizable sorbants such as activated carbon.
Eye/face protection	Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.
Skin and body protection	For body protection wear impervious clothing such as an approved splash protective suit made of SBR rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboot made of nylon or nylon blends. DO NOT USE cotton, wool or leather as these materials react rapidly with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles, can cause the material to ignite and result in a fire.
Hand protection	For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.
Other Protective Equipment	Ensure that eyewash stations and safety showers are close to the workstation location
Hygiene measures	Avoid breathing vapors, mist or gas. Clean water should be available for washing in case of eye or skin contamination.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Clear, colorless liquid
Physical state	Liquid
Odor	odorless
pH	<= 1
Melting Point/Range	No information available.
Freezing point	-40 °C
Boiling Point/Range	125 °C
Flash Point	Not combustible
Evaporation rate	>1 (BuAc = 1)
Flammable properties	Contact with combustible material may cause fire.
Oxidizing properties	Powerful oxidizer
Vapor pressure	11 mm Hg @ 30 °C
Vapor density	No information available.
Specific Gravity	1.29
Water solubility	Completely Soluble
Percent volatile	100%
Partition coefficient:	log Kow = -1.5 @ 20 °C
Viscosity	1.24 cP @ 20 °C

9.2 Other information

Autoignition Temperature	Not combustible

10. Stability and reactivity

Stability	Stable under normal conditions. Decomposes on heating. Stable under recommended storage conditions.
Conditions to avoid	Excessive heat; Contamination; Exposure to UV-rays; pH variations.
Materials to avoid	Combustible materials. Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.
Hazardous decomposition products	Oxygen which supports combustion. Liable to produce overpressure in container.
Hazardous polymerization	Hazardous polymerization does not occur.
Hazardous reactions	Contact with organic substances may cause fire or explosion. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

11. Toxicological information

Acute effects

Eye irritation	Corrosive
Skin irritation	Corrosive
LD50 Oral	50% solution: LD50 > 225 mg/kg bw (rat) 35 % solution:LD50 1193 mg/kg bw (rat) 70 % solution: LD50 1026 mg/kg bw (rat)
LD50 Dermal	35% solution: LD50 > 2000 mg/kg bw (rabbit) 70 % solution: LD50 9200 mg/kg bw (rabbit)
LC50 Inhalation	50% solution: LC50 > 170 mg/m³ (rat) (4-hr) Hydrogen Peroxide vapors: LC0 9400 mg/m³ (mouse) (5 - 15 minutes) Hydrogen Peroxide vapors: LC50 > 2160 mg/m³ (mouse)
Sensitization	Did not cause sensitization on laboratory animals.

Chronic Toxicity

Carcinogenicity	This product contains hydrogen peroxide. The International Agency for Research on Cancer (IARC) has conculded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3)

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrogen peroxide	A3	3		

Mutagenicity	This product is not recognized as mutagenic by Research Agencies. In vivo tests did not show mutagenic effects.
Target Organ Effects	Eyes, Respiratory system, Skin.

12. Ecological information

Ecotoxicity

Hydrogen peroxide is naturally produced by sunlight (between 0.1 and 4 ppb in air and 0.001 to 0.1 mg/L in water). Not expected to have significant environmental effects.

Active Ingredient(s)

Hydrogen peroxide (7722-84-1)

Active Ingredient(s)	Duration	Species	Value	Units:
Hydrogen Peroxide	96 h LC50	Fish Pimephales promelas	16.4	mg/L
Hydrogen Peroxide	72 h LC50	Fish Leuciscus idus	35	mg/L
Hydrogen Peroxide	48 h EC50	Daphnia pulex	2.4	mg/L
Hydrogen Peroxide	24 h EC50	Daphnia magna	7.7	mg/L
Hydrogen Peroxide	72 h EC50	Algae Skeletonema costatum	1.38	mg/L

Persistence and degradability Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10 - 20 hours, and in soils from minutes to hours depending upon microbiological activity and metal contamination.

Bioaccumulation Material may have some potential to bioaccumulate but will likely degrade in most environments before accumulation can occur.

Mobility Will likely be mobile in the environment due to its water solubility but will likely degrade over time.

Chemical Name	log Pow
Hydrogen peroxide	-1.57 @ 25°C

Other adverse effects Decomposes into oxygen and water. No adverse effects.

13. Disposal considerations

Waste disposal methods Dispose of in accordance with local regulations. Can be disposed as waste water, when in compliance with local regulations.

RCRA D Waste Code D001 (ignitable), D002 (corrosive)

Contaminated packaging Dispose of in accordance with local regulations.
Drums - Empty as thoroughly as possible. Triple rinse drums before disposal. Avoid contamination; impurities accelerate decomposition. Never return product to original container.

14. Transport information

DOT

UN/ID No	2015
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED
Hazard Class	5.1 (Oxidizer)
Subsidiary Class	8
Packing group	I
Additional information	DOT Spec: stainless steel/high purity aluminum cargo tanks and rail cars. UN Spec: high purity aluminum drums. Contact FMC for specific details.

TDG

UN/ID No	UN 2015
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED
Hazard Class	5.1 (Oxidizer)
Subsidiary Class	8

Packing group	I

ICAO/IATA

Hydrogen peroxide (>40%) is forbidden on Passenger and Cargo Aircraft.

IMDG/IMO

UN/ID No	2015
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED
Hazard Class	5.1
Subsidiary hazard class	8
Packing group	I

Other information

Protect from physical damage. Keep drums in upright position. Drums should not be stacked in transit. Do not store drums on wooden pallets.

15. Regulatory information

International Inventories

TSCA Inventory (United States of America)	Complies
DSL (Canada)	Complies
NDSL (Canada)	Complies
EINECS/ELINCS (Europe)	Complies
ENCS (Japan)	Complies
IECSC (China)	Complies
KECL (Korea)	Complies
PICCS (Philippines)	Complies
AICS (Australia)	Complies
NZIoC (New Zealand)	Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	yes
Chronic Health Hazard	no
Fire Hazard	yes
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Hydrogen peroxide		1000 lb

SARA 302/CERCLA 355 Extremely Hazardous Substances: Hydrogen Peroxide RQ is for concentrations of > 52% only

International Regulations

Mexico - Grade Slight risk, Grade 1

Chemical Name	Carcinogen Status	Mexico

Hydrogen peroxide	A3	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m³ Mexico: STEL 2 ppm Mexico: STEL 3 mg/m³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

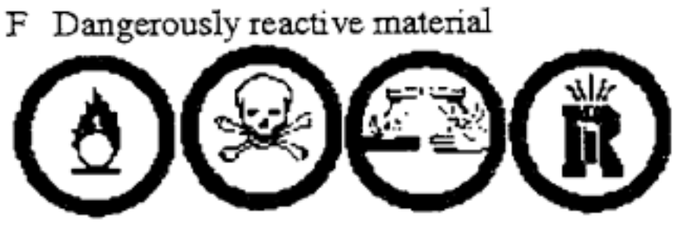
WHMIS Hazard Class

C Oxidizing materials

D1B Toxic materials

E Corrosive material

F Dangerously reactive material



16. Other information

HMIS	Health Hazard 3	Flammability 0	Stability 3	Special precautions H

Revision Date: 2013-03-19

Reason for revision: No information available.

Disclaimer

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Prepared By

FMC Corporation

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End of Material Safety Data Sheet